PROCUREMENT SPECIFICATION
INFLATABLE SEAL AND LIP SEAL HOUSINGS

1. Background

The Naval Undersea Warfare Center Division Newport (NUWC) has been tasked by the VIRGINIA Class Submarine Program Office (PMS450) to provide spare components for weapon launch equipment installed on the VIRGINIA Class Submarine.

2. Scope

The Contractor shall manufacture, inspect, and certify two Inflatable Seal Housings and two Lip Seal Housings as identified in table 2-1 below. The hardware shall be manufactured in accordance with the governing drawings and the provisions contained in this procurement specification. In the case of conflict between the documents, the order of precedence shall be this procurement specification, contract provisions and NAVSEA drawings. All questions and requests for clarification concerning precedence shall be directed to NUWC in writing for adjudication.

Item Description	Drawing No	Revision	Qty
Inflatable Seal Housing	6407181	D	2
Lip Seal Housing	6407183	B	2

Table 2-1. Hardware Identification and Quantity

3. Applicable Documents

3.1. NAVSEA Drawings

Drawing No	Revision	Title
6407181	D	Inflatable Seal Housing
6407183	B	Lip Seal Housing

3.2. Military and Federal Specifications and Publications

Spec Number	Rev - Date	Title
MIL-C-20159	C March 1985	Copper-Nickel Alloy Castings
MIL-STD-130	N	Identification Marking of U.S. Military Property
MIL-STD-792F	19 May 2006	Identification Marking Requirements For Special Purpose Components
MIL-STD-2035A	15 May 1995	Nondestructive Testing Acceptance Criteria
MIL-HDBK-61A	07 Feb 2001	Configuration Management Guidance
S9074-AQ-GIB-010/248	Aug 1995	Requirements for Welding and Brazing Procedure and Performance Qualification
S9074-AR-GIB-010/278	Aug 1995	Requirements for Fabrication Welding and Casting Inspection and Repair
T9074-AS-GIB-010/271	May 1999 Change 1	Requirements for Nondestructive Testing Methods

3.3. Commercial Specifications

Spec Number	Rev - Date	Title
ASTM B150-03	2003	Standard specification for Aluminum Bronze Rod, Bar and Shapes
ANSI/AWS A2.4	1986	Standard Symbols for Welding, Brazing & Nondestructive Examination
ANSI Y14.5	1982	Mathematical Definition of Dimensioning and Tolerancing Principles

3.4. Drawing and Specification Revision Levels

Revision levels for all government or commercial specifications/standards shall be as listed or later. Use of a revision level other than as specified (or later) shall be authorized on a case by case basis pending approval of a written request by the contractor. The written request for approval shall be submitted to the applicable NUWC Technical Representative for adjudication. The contractor shall prepare a written notification informing NUWC of the deviation using the deviation and waiver process of Section 5.6 of this procurement specification. The request shall include a description of the rationale for acceptance.

4. Hardware Requirements

4.1. Inflatable Seal Housing – Drawing 6407181 Rev D

4.1.1 ***Material Requirements.*** Material for the inflatable seal housing is NIALBRZ UNS C63200 Alloy per ASTM B150 Form SHP, TEM TQ50. The material is to be a forging. Material Properties for the forged material shall be per Table 2 of ASTM B150 and are repeated here for clarity:

Tensile	90 ksi
Yield	40 ksi
Elongation	15% min

4.1.2 ***Material Certification Requirements.*** The contractor shall obtain chemical composition and mechanical property test reports from the material supplier in the final material condition for the heat/lot of material used to manufacture the inflatable seal housings.

- Chemical composition testing shall be performed in accordance with the requirements of ASTM B150.
- Mechanical property testing shall be performed in accordance with the requirements of ASTM B150.

The contractor may substitute mill certificates containing the results of the chemical composition and mechanical property tests for individual chemical and mechanical property test reports provided that the heat/lot markings on the material can be traced to the heat/lot numbers on the certificate. The contractor shall include the material certification in the Objective Quality Evidence (OQE) provided to NUWC with the finished product.

4.1.2.1 Data Deliverable. The contractor shall provide material certification reports in accordance with CDRL A006.

4.1.3 ***Welding Requirements.*** Where called out in the governing drawing notes, references to MIL-STD-278F shall be deleted and replaced with NAVSEA Technical Publication S9074-AR-GIB-010/278. The contractor shall perform all welding in accordance with NAVSEA Technical Publication S9074-AR-GIB-010/278, Class P-1.

The contractor shall prepare a weld procedure in accordance with the requirements of NAVSEA Technical Publication S9074-AR-GIB-010/278. The contractor shall submit the welding procedure to NUWCDIVNPT via the local DCMA for review and approval. The contractor shall not perform any welding operations without an approved welding procedure. Previously approved welding procedures may be used provided the contractor provides a copy of the fully executed approval letter to NUWCDIVNPT.

4.1.3.1 Data Deliverable. The contractor shall provide welding procedures for review and approval in accordance with CDRL A009.

The contractor shall ensure that welding is performed by a qualified welder in accordance with NAVSEA S9074-AR-GIB-010/278. The contractor shall maintain welding procedure qualification test data and welder qualification data per the requirements of NAVSEA S9074-AR-GIB-010/278 and shall make these documents available for government inspection upon request.

The contractor shall maintain welding records as required per NAVSEA S9074-AR-GIB-010/278. The weld records shall include the identification of the weld procedure used, joint, base material, filler material, heat treatments and welder qualifications. The contractor shall make the weld records available for government inspection upon request.

4.1.4 ***NDT Requirements.*** Where called out in the drawing notes, references to MIL-STD-278F shall be deleted and replaced with NAVSEA Technical Publication S9074-AR-GIB-010/278. The contractor shall perform Non-Destructive Testing (NDT) as required per table IX of NAVSEA Technical Publication S9074-AR-GIB-010/278 on all welds. VT (visual) and PT (dye penetrant) is required all welds. The contractor is not required to perform hydrostatic testing.

The contractor shall prepare a VT and PT procedure in accordance with NAVSEA T9074-AS-GIB-010/271. The contractor shall submit the NDT procedures for approval to NUWCDIVNPT via the local DCMA. The contractor shall not proceed with NDT inspection until written approval of the procedure is provided by the government to the contractor. Previously approved NDT procedures may be used provided the contractor provides a copy of the fully executed approval letter to NUWCDIVNPT.

- Data Deliverable. The contractor shall provide NDT procedures for review and approval in accordance with CDRL A007.

The contractor shall perform an initial VT and PT inspection on the plug weld following the welding process. The contractor shall perform a second VT and PT inspection of the plug weld after final machining of the plug weld. The contractor shall perform all NDT in accordance with NAVSEA T9074-AS-GIB-010/271 and the approved procedures.

The contractor shall provide an NDT inspection report for each non-destructive test performed. The contractor shall include the NDT Report as part of the Objective Quality Evidence (OQE) provided to NUWC with the finished product. At a minimum, the following data shall be included on the report/cert:

- The letterhead or logo of the performing activity
- Approved Procedure Identification
- Description and unique identification of item inspected
- The part number and revision letter
- The contractor lot number
- The NUWCDINPT assigned serial number
- **The number and revision of the approved procedure used**
- The equipment used that requires calibration, or periodic validation testing, by the applicable drawing imposed NDT specification.

- Penetrant manufacturer (brand) and type identification for Penetrant and Developer A specific statement of compliance and acceptance to the drawing imposed specification and the revision used.
- Indications of note
- Acceptance to MIL-STD-2035A
- Date of inspection
- Typed or printed name of accepting personnel
- Typed or printed title of this person
- Signature with printed name
- NDT Personnel Qualification compliance to NAVSEA T9074-AS-GIB-010/271
- Disposition (accept/reject) of the items inspected (and reason for retests, if any)

The contractor shall ensure that the name of the signatory is printed on all NDT test reports where signature is required. No exceptions shall be approved.

- Data Deliverable. The contractor shall provide an NDT report for each performed NDT inspection in accordance with CDRL A008.

4.1.5 ***Detailed Inspection Plans/Reports.*** The contractor shall prepare and complete a Detailed Inspection Plan (DIP)/DIP report for each inflatable seal housing in accordance with the requirements of paragraph 5.3 of this procurement specification. The contractor shall include the completed DIP report as part of the Objective Quality Evidence (OQE) provided to NUWC with the finished product. The contractor shall make copies of the DIP/DIP report available for government inspection upon request.

4.1.5.1 Data Deliverable. The contractor shall provide a completed DIP report for each inflatable seal housing in accordance with CDRL A004.

4.1.6 ***Certificate of Compliance.*** The contractor shall prepare a certificate of compliance for each inflatable seal housing certifying that each inflatable seal housing has been manufactured to all contractual requirements. The contractor shall ensure that the certificates are traceable to the hardware. In lieu of individual certificates of compliance certifications for each inflatable seal housing, the contractor may substitute a lot certificate provided that the certificate references the specific assemblies covered by the certificate. Part numbers, serial numbers, and purchase order numbers may be used for this purpose. Other identification numbers may be used as long as the hardware can be easily linked to the appropriate certificate. The contractor shall include the certificate of compliance as part of the Objective Quality Evidence (OQE) provided to NUWC with the finished product. The contractor shall make copies of the certificate available for government inspection upon request.

4.1.6.1 Data Deliverable. The contractor shall provide certificates of compliance for each inflatable seal housing in accordance with CDRL A001.

4.1.7 ***Mercury Free Certification.*** Each inflatable seal housing shall be accompanied by a mercury free certification. The contractor shall prepare the mercury free certification in accordance with the requirements of paragraph 5.4 of this procurement specification. In lieu of individual mercury free certifications, the contractor may substitute a lot

certification provided that the certification references the specific hardware covered by the certificate. Part numbers, serial numbers and purchase order numbers may be used for this purpose. Other identification numbers may be used as long as the hardware can be easily linked to the appropriate certificate. The contractor shall include the mercury free certificate as part of the Objective Quality Evidence (OQE) provided to NUWC with the finished product. The contractor shall make copies of the mercury free certificate available for government inspection upon request.

4.1.7.1 Data Deliverable. The contractor shall provide a mercury free certificate for each inflatable seal housing in accordance with CDRL A002.

4.1.8 ***Packaging Requirements.*** The contractor shall individually wrap each inflatable seal housing with plastic or other suitable protective material in order to protect the housing from normal handling damage and to maintain the cleanliness of the housing during the packaging and shipping process. Each inflatable seal housing shall be placed in an individual wooden container suitable for commercial transport. The container shall be designed to restrain the inflatable seal housing within the container using standard methods and materials.

4.2. Lip Seal Housing – Drawing 6407183 Rev B

4.2.1. ***Material Requirements.*** Material for the lip seal housing is Copper-Nickel Alloy UNS C96400 casting per MIL-C-20159C, COND as cast. The material is to be centrifugally cast. Material Properties for the cast material shall be per paragraph 3.3 of MIL-C-20159C and are repeated here for clarity:

Tensile	60 ksi
Yield	32 ksi
Elongation	20% min

Material shall be tested in accordance with the weldability test requirement per paragraph 4.4.2 of MIL-C-20159C. Weldability test results shall be reported on the material certification.

4.2.2. ***Material Certification Requirements.*** The contractor shall provide a material certification for the castings used to manufacture the lip seal housings. The material certification shall include the results of chemical composition testing, mechanical property testing and weldability testing.

- Chemical composition testing shall be performed in accordance with the requirements of paragraph 3.2 of MIL-C-20159C.
- Mechanical property testing shall be performed in accordance with the requirements of paragraphs 3.3 and 4.4.2 of MIL-C-20159C.

The contractor shall include the material certification in the Objective Quality Evidence (OQE) provided to NUWC with the finished product. Heat/Lot or Casting numbers shall be used to correlate the material certification to the hardware.

4.2.2.1. Data Deliverable. The contractor shall provide a material certification for each casting in accordance with CDRL A006.

4.2.3. ***Welding Requirements.*** Weld repair of the castings is permitted in accordance with MIL-STD-20159C. Where called out in MIL-C-20159C, references to MIL-STD-278 and MIL-STD-248 shall be deleted and replaced with NAVSEA Technical Publication S9074-AR-GIB-010/278 and NAVSEA Technical Publication S9074-AQ- GIB-010/248 respectively. The contractor shall perform all weld repairs on the castings in accordance with NAVSEA Technical Publication S9074-AR-GIB-010/278 using welders and weld procedures qualified to NAVSEA Technical Publication S9074-AQ- GIB-010/248.

The contractor shall prepare a weld procedure in accordance with the requirements of NAVSEA Technical Publication S9074-AR-GIB-010/278. The contractor shall submit the welding procedure to NUWCDIVNPT via the local DCMA for review and approval. The contractor shall not perform any welding operations without an approved welding procedure. Previously approved welding procedures may be used provided the contractor provides a copy of the fully executed approval letter to NUWCDIVNPT.

- Data Deliverable. The contractor shall provide a welding procedure for review and approval in accordance with CDRL A009.

The contractor shall ensure that welding is performed by a qualified welder in accordance with NAVSEA S9074-AR-GIB-010/278. The contractor shall maintain welding procedure qualification test data and welder qualification data per the requirements of NAVSEA S9074-AR-GIB-010/278 and shall make these documents available for government inspection upon request.

The contractor shall maintain welding records as required per NAVSEA S9074-AR-GIB-010/278. The weld records shall include the identification of the weld procedure used, joint, base material, filler material, heat treatments and welder qualifications. The contractor shall make the weld records available for government inspection upon request.

4.2.4. ***NDT Requirements.*** The contractor shall perform VT inspection on each final machined lip seal housing. The contractor shall perform the VT inspection in accordance with NAVSEA T9074-AS-GIB-010/271. The contractor shall prepare and deliver a VT inspection report in accordance with NAVSEA T9074-AS-GIB-010/271 and show acceptance to MIL-STD-2035A.

4.2.4.1. Data Deliverable. The contractor shall provide VT inspection reports with the finished product in accordance with CDRL A008.

4.2.5. ***Detailed Inspection Plans/Reports.*** The contractor shall prepare and complete a DIP/DIP report for each inflatable seal housing in accordance with the requirements of paragraph 5.3 of this procurement specification. The contractor shall include the completed DIP report as part of the OQE provided to NUWC with the finished product. The contractor shall make copies of the DIP.DIP report available for government inspection upon request.

4.2.5.1. Data Deliverable. The contractor shall provide a completed DIP report for each inflatable seal housing in accordance with CDRL A004.

4.2.6. ***Certificate of Compliance.*** The contractor shall prepare a certificate of compliance for each lip seal housing certifying that each lip seal housing has been manufactured to all contractual requirements. The contractor shall ensure that the certificates are traceable to the hardware. In lieu of individual certificates of compliance certifications for each lip seal housing, the contractor may substitute a lot certificate provided that the certificate references the hardware covered by the certificate. Part numbers, serial numbers, and purchase order numbers may be used for this purpose. Other identification numbers may be used as long as the hardware can be easily linked to the appropriate certificate. The contractor shall include the certificate of compliance as part of the Objective Quality Evidence (OQE) provided to NUWC with the finished product. The contractor shall make copies of the certificate available for government inspection upon request.

4.2.6.1. Data Deliverable. The contractor shall provide certificates of compliance for each lip seal housing in accordance with CDRL A001.

4.2.7. ***Mercury Free Certification.*** Each lip seal housing shall be accompanied by a mercury free certification. The contractor shall prepare the mercury free certification in accordance with the requirements of paragraph 5.4 of this procurement specification. . In lieu of individual mercury free certifications, the contractor may substitute a lot certification provided that the certification references the specific hardware covered by the certificate. Part numbers, serial numbers and purchase order numbers may be used for this purpose. Other identification numbers may be used as long as the hardware can be easily linked to the appropriate certificate. The contractor shall include the mercury free certificate as part of the Objective Quality Evidence (OQE) provided to NUWC with the finished product. The contractor shall make copies of the mercury free certificate available for government inspection upon request.

4.2.7.1. Data Deliverable. The contractor shall provide a mercury free certificate for each lip seal housing in accordance with CDRL A002.

4.2.8. ***Packaging Requirements.*** The contractor shall individually wrap each lip seal housing with plastic or other suitable protective material in order to protect the housing from normal handling damage and to maintain the cleanliness of the housing during the packaging and shipping process. Each lip seal housing shall be placed in an individual wooden container suitable for commercial transport. The container shall be designed to restrain the inflatable seal housing within the container using standard methods and materials.

5. Additional Requirements

5.1. Quality Assurance

The contractor shall operate under an ANSI/ISO/ASQ Q9001-2000 (or higher) or MIL-I-45208 quality system. The contractor shall maintain a quality system which will assure that all supplies and services submitted to the Government for acceptance conform to contract requirements whether manufactured or processed by the contractor, or procured from subcontractors or vendors. The contractor shall perform or have performed the inspections and tests required to substantiate product conformance to drawing, specifications and contract requirements and shall also perform or have performed all inspections and tests otherwise required by the contract. The contractor's quality system shall be documented and shall be made available for government inspection upon request. Contractors operating under will be deemed acceptable.

5.2. Source Inspection.

Government source inspection is required under this contract. Government source inspection shall be performed at the contractor's site or a sub-tier sites identified by the contractor. The contractor shall make copies of all data deliverables and supporting documentation for each completed component at the appropriate site for inspection along with the hardware for government source inspection. The contractor shall not be authorized to ship the components prior to government source inspection.

5.3. Detailed Inspection Plans/Reports

The contractor shall prepare a Detailed Inspection Plan (DIP) and complete a DIP Report for the components as required per paragraph 4 of this procurement specification. The DIP and the completed DIP report shall form part of the OQE for accepting the component.

The DIP shall define 100% of the drawing characteristics for the component and the DIP report shall document and record the inspection results for each characteristic. For a dimensional characteristic, the DIP shall identify the drawing requirement including location of the characteristic by drawing zone, tolerance allowance, the measurement results, the measurement equipment used and a signature or stamp of the operator performing the inspection. For a procedural characteristic, the process must be witnessed or OQE must be available to verify the performance of the process. The DIP shall indicate when a process is either witnessed or verified through OQE. The completed DIP report shall be certified by a contractor approved official via signature. The signature of the contractor approved official shall be accompanied by their printed/typed name for clarity. Contractor format is acceptable as long as the required information is provided. The contractor is responsible for performing all inspections required to complete the DIP Report.

The Contractor shall note any deviations from the drawing requirements for any of the features inspected per the DIP on the DIP report. The contractor shall contact the NUWC

Technical Representative immediately to notify NUWC of any observed nonconformance. The contractor shall prepare a written notification informing NUWC of the nonconformance using the deviation and waiver process of paragraph 5.6 of this procurement specification. The written notification shall include any recommended options to correct the deviation.

The contractor shall keep a copy of the DIPs and the completed DIP reports on file and shall make the DIPs and DIP reports available for review to Government representatives, upon request, for the life of the contract.

5.4. Mercury Free Certification

a. Mercury Contamination: The supplies furnished under this contract shall contain no metallic or mercury compounds and shall be free from mercury contamination (i.e., during the manufacturing process, testing, or inspecting) in accordance with NAVSEAINST 5100.3D. The supplies offered shall not have come in direct contact with mercury or any of its compounds nor with any mercury-containing device employing only a single boundary of containment. (A single boundary of containment is one, which is not backed by a seal or barrier.) Mercury contamination of the supplies will be cause for rejection of the material.

b. If there is reasonable cause to suspect the supplies of being contaminated by mercury, the following test may be used to determine whether contamination by metallic mercury exists: Enclose the equipment in a polyethylene bag or close-fitting airtight container and place in an oven at 125 degrees F +/- 5 degrees F for one hour. Sample the trapped air and if mercury vapor concentration is 0.01 mg/cu meter or more, the material is mercury contaminated insofar as the requirements of this contract are concerned. Mercury vapor concentration can be determined with a mercury vapor detector that has the capability of detecting 0.005 milligrams of mercury per cubic meter. It should be noted that certain vapors such as benzene interfere with this type of mercury vapor detector and the detector should never be zero adjusted in any suspect atmosphere.

c. If the inclusion of metallic mercury or mercury compounds is required as a functional part of the material furnished under this contract, the contractor shall obtain written approval from NAVSEA before proceeding with manufacture. The contractor's request shall explain in detail the requirement for mercury, identify specifically the parts to contain mercury, and explain the method of protection against mercury escape. Such a request will be forwarded to the Government Inspector or Government Representative with a copy to NAVSEA.

d. The contractor is required to certify via a certificate of compliance that:

1) The supplies furnished under this contract contain no metallic mercury or mercury compounds.

2) The contractor has taken responsible steps to ensure that the supplies furnished under this contract are not contaminated with metallic mercury or mercury compounds.

e. The requirements of this clause shall be included in all subcontracts hereunder. Technical questions pertaining to the requirements of this clause shall be referred to NAVSEA via the Government Inspector or Representative.

5.5. Part Identification and Marking

The contractor shall mark each completed component with the following:

- Part Number and Revision Level per drawing note requirements
- Contractor Cage Code and Trademark (if applicable)
- NUWC supplied Serial Number
- NDT and other Quality Control markings
- Raw material marking as defined herein as appropriate (ie. Heat/Lot)
- Supplier control procedures/requirements

The contractor shall make all markings on the parts in accordance with MIL-STD-792F. The contractor shall place all markings as close together as possible in the area indicated on the controlling drawings.

5.5.1. ***Part Number and Revision Level Markings.*** The contractor shall mark each part with the controlling drawing number, with a prefix of 53711 (original design agent CAGE Code), suffixed with the applicable item dash number and drawing revision letter.

5.5.2. ***Contactor Cage Code, Trademark and NUWC Serial Number.*** Following the part number markings, the contractor shall mark each part with the contractor's 5-digit CAGE code prefixed with the letters MFR. A trademark may also be added, if applicable. After the contractor identification markings, the contractor shall mark each part with a unique serial number. The serial number shall be preceded with the letters SN and a dash. NUWC shall provide the appropriate serial numbers within 4 weeks of placement of each order under this contract. Once a serial number has been established on any parts or components, the contractor shall maintain correlation between the serial number and the required documentation throughout subsequent processing to the finished part level.

5.5.3. ***NDT and Other Quality Control Markings.*** Quality control required markings consist of NDT markings and heat/lot identifiers. The NDT inspection mark shall be a standalone marking placed near the other markings. The contractor shall make the NDT marks in accordance with MIL-STD-792F and shall place the markings on the part after successful completion of the required inspection procedure. The NDT marking corresponding to the required inspection methods are:

- PT for satisfactory liquid penetrant examination
- VT for satisfactory visual examination

Other NDT markings are permissible such as unique quality assurance ink stamps used to identify inspector review of the parts. These markings are allowable on the parts as long as their use is fully defined in the contractor's quality control program.

5.5.4. ***Raw Material Marking Requirements.*** The contractor shall mark the raw material in its final material condition with material type, specification number, material designation number and unique heat/lot number. The contractor shall make all markings in accordance with MIL-STD-792F. The contractor shall be allowed to make additional markings to aid material process flow provided such markings are part of the contractor's quality control program. Examples of such additional markings are sketch number, successful NDT markings or other product control numbers.

The contractor shall record any required raw material markings placed on the original material and replace the markings on the finished part if subsequent machining operations obliterate or remove the original markings.

5.5.5. ***Supplier Control Procedure Markings.*** Additional markings not required by drawing note specification or specified herein may be added to the part to aid in the manufacturing or process flow of the part as long as such markings are part of the contactor's quality assurance program. The contractor shall make all such markings in accordance with MIL-STD-792F and shall place the markings as close to the other markings as possible in the location indicated in the governing drawings or as specified herein. Examples of the additional markings include process control numbers or internal supplier serial numbers.

5.5.6. ***Examples of Required Markings.*** Example marking for the inflatable seal housing, drawing 6407181 Rev D, is shown below.

Marking	Explanation
53711 6407181 Rev A	CAGE Code of original design agent (NAVSEA Cage 53711), drawing number and drawing revision level
MFR XXXXX	Manufacturer cage code
SN-NUWCXXXX	SN and NUWC supplied serial number
ASTM B150 UNS C63200 FM SHP, TEM TQ50, HXXX	Material identification numbers for specification, material and heat (HXXX)
PT	NDT Marking

5.6. Deviations and Waivers

5.6.1. ***Deviations.*** Prior to the start of any manufacturing operation, the contractor may request engineering or other changes to the drawing requirements, specification requirements or other contract requirements as a deviation from specification. The specifics regarding any request for deviation shall be communicated to the NUWC Technical Representative in writing. Requests for deviations, if required, shall be prepared in accordance with MIL-HDBK-61A. The document shall be submitted to the NUWC Technical Representative for review and approval to proceed. Upon receipt of the deviation request by NUWC, NUWC will assign a unique deviation number. This number shall be placed on all correspondence pertaining to the specific deviation request. Requests for Deviation shall be communicated to NUWC as soon as possible so that a decision to

proceed can be made in a timely manner to avoid undue delay to the delivery of the final and complete items.

5.6.1.1. Data Deliverables: The contractor shall deliver deviations in accordance with CDRL A003.

5.6.2. ***Waivers.*** During any manufacturing, testing, inspection or assembly operations, the contractor shall identify any and all non-conformances to the drawing requirements, specification requirements or other contract requirements as a waiver of non-conformance. The specifics regarding any waivers shall be communicated to the NUWC Technical Representative in writing. Requests for waivers of non-conformances, if required, shall be prepared in accordance with MIL-HDBK-61A. The document shall be submitted to the NUWC Technical Representative for review and approval to proceed. Upon receipt of the request by NUWC, NUWC will assign a unique waiver number. This number shall be placed on all correspondence pertaining to the specific request for waiver. Waivers and non-conformances shall be communicated to NUWC as soon as possible so that a decision to proceed can be made in a timely manner to avoid undue delay to the delivery of the final and complete items. The contractor is not authorized to use any material with an identified or documented non-conformance without the written approval of NUWC.

5.6.2.1. Data Deliverable. The contractor shall deliver waivers in accordance with CDRL A005.

5.7. Manufacturing Documentation for Delivery

As identified in paragraphs 4 and 5, the contractor is required to provide supporting manufacturing documentation with the hardware at time of hardware delivery. The contractor shall also maintain a copy of all generated/obtained and delivered manufacturing documentation and shall make all documentation available to Government representatives for review, upon request, for the life of the contract.

The contractor shall deliver the manufacturing documentation packages bound in an appropriate manner and organized to allow for reference to the hardware. One paper copy of each documentation package is required. In addition, the documentation is required to be delivered by the contractor on optical media using a pdf file format.